AIR FORCE TEST AND TRAINING REQUIREMENTS: AN ACQUISITION PERSPECTIVE

George F. Kirby
Director, Range Systems Program Office
Eglin AFB, FL

OVERVIEW

- **FULL SCALE AERIAL TARGETS**
- **SUBSCALE AERIAL TARGETS**
- **TARGET CONTROL SYSTEMS**
- **COMMON DIGITAL ARCHITECTURE**
- **AIR COMBAT TEST AND TRAINING SYSTEMS (ACTTS)**
- **JOINT MODULAR GROUND TARGETS**

CURRENT FULL SCALE AERIAL TARGET

- **QF-4**
  - **-- RETIRED F-4 C/E/G REGENERATED BY AMARC**
  - **-- DRONE MODIFICATION PERFORMED BY BAE SYSTEMS**

CURRENT FULL SCALE AERIAL TARGET

(cont)

- **FSAT REQUIRED BY USC TITLE 10**
- **FSAT PROVIDES ADEQUATE PAYLOAD CAPABILITY FOR ECM MISSIONS**
- **ONLY SYSTEM THAT MEETS SUPERSONIC REQUIREMENT FOR USAF AND USA**

QF-4 LIMITATIONS

- **RADAR CROSS SECTION IS HIGH**
  - **NOT THREAT REPRESENTATIVE FOR NEXT GENERATION FIGHTERS**
- **MAINTENANCE COSTS ARE INCREASING**
  - **AGE-RELATED ISSUES**
  - **SPARES AVAILABILITY**
- **QF-4 PERFORMANCE RESTRICTIONS IN ALLOCATED RANGE SPACE**
  - **MAXIMUM SPEED: MACH 2**
  - **MAXIMUM ALTITUDE: 55K FT**

FUTURE FULL SCALE AERIAL TARGETS

- **FOLLOW-ON TO THE QF-4 IS REQUIRED BY FY10**
  - **QF-4 INVENTORIES WILL BE DEPLETED**
  - **QF-4 WILL BE 40 YRS OLD**
  - **EXPENSIVE SUSTAINMENT AND RELIABILITY ISSUES**
- **FIRST TRI-SERVICE INTER-OPERABLE FULL SCALE TARGET**

FUTURE FULL SCALE AERIAL TARGETS

- **FY01 TARGET MANAGEMENT INITIATIVE TO IDENTIFY FUTURE FSAT**
  - **VALIDATE THE NEED FOR FSAT**
    - **USER AND TESTER**
    - **DOT&E LIVE FIRE (COMPLETE / CONFIRMED)**
  - **ASSESS EXISTING AIRFRAMES**
  - **ASSESS OTHER PLATFORMS**
  - **UAVS**
  - **OTHER POSSIBILITIES**

CURRENT SUBSCALE AERIAL TARGETS

- **BQM-34A: PRIMARY ROLE IS ECM MISSION --CAPABLE OF CARRYING THE HEAVY PODS**
- **MQM-107: PRIMARY ROLE IS HIGH PERFORMANCE --MANEUVERING WITH IR PODS**

CURRENT SUBSCALE AERIAL TARGETS

- **SSAT ADVANTAGES OVER FULL SCALE**
  - **HIGHER RELIABILITY**
  - **MORE SURVIVABLE (6-8 MISSIONS EACH**
  - **LESS EXPENSIVE**

CURRENT SSAT LIMITATIONS

BQM-34:

- **ENDURANCE (TIME ON STATION) IS LIMITED**
  - **FUEL CAPACITY**
- **TARGET AND PAYLOADS ARE EXPENSIVE**
- **O&M COSTS ARE HIGH**

CURRENT SSAT LIMITATIONS

MQM 107-D/E

- **SIGNIFICANTLY REDUCED PERFORMANCE WITH HEAVY PAYLOADS**
- **MINIMAL INTERNAL PAYLOAD SPACE**
- **LOW TOP END SPEED**

FUTURE SUBSCALE AERIAL TARGETS

- **AIR FORCE SUBSCALE AERIAL TARGET (AFSAT)**
  - **NDI ACQUISITION CONCEPT**
  - **COMBINES THE CAPABILITIES OF BQM-34 AND MQM-107 INTO ONE TARGET**
  - **INCREASED PROCUREMENT QUANTITIES**
  - **REDUCED O&M SUPPORT TAIL**

FUTURE SUBSCALE AERIAL TARGETS

- **AIR FORCE SUBSCALE AERIAL TARGET (AFSAT) (cont)**
  - **ORD SIGNED 25 JAN 00**
  - **CBD RELEASED 27 AUG 00**
  - **INDUSTRY DAY 27/28 SEP 00**
  - **DRAFT RFP: FEB 01**
  - **FINAL RFP: AUG 01**

FUTURE SUBSCALE AERIAL TARGETS

- **AIR FORCE SUBSCALE AERIAL TARGET (AFSAT) (cont)**
  - **CONTRACT AWARD: (2 CONTRACTS) JAN 02**
  - **FLIGHT DEMO: MAY/AUG 03**
  - **PRODUCTION DECISION: SEP 03**
  - **DELIVERIES: JAN 05**

CURRENT TARGET CONTROL SYSTEM

- GULF RANGE DRONE CONTROL SYSTEM (GRDCS)
  - OPERATIONAL SINCE MID-1980S
  - MULTI-LATERATION SYSTEM OF GROUND-BASED ANTENNAS
  - 915 MHZ FREQUENCY (COMMERCIAL)
  - OVER-THE-HORIZON CAPABILITY THROUGH AIRBORNE RELAY

TARGET CONTROL LIMITATIONS

- NO GPS
- USE OF COMMERCIAL FREQUENCY (915 MHZ)
  - INTERFERENCE IS INCREASING
  - CLOSED A PORTION OF GULF RANGE
  - OPERATIONS HAVE BEEN CANCELLED DUE TO INTERFERENCE
- INCREASED MAINTENANCE COSTS DUE TO GROUND-BASED MULTI-LATERATION ANTENNAS

FUTURE TARGET CONTROL SYSTEM

- **MULTI-SERVICE TARGET CONTROL SYSTEM (MSTCS)**
- **OSD FUNDED PROGRAM (CTEIP)**
- **GOAL IS FOR A COMMON TARGET CONTROL SYSTEM ACROSS ALL THREE SERVICES**
  - **INCORPORATE GPS**
  - **MOVES THE USAF OFF OF 915 MHZ**
  - **FAMILY OF TRANSPONDERS**

FUTURE TARGET CONTROL SYSTEM

(cont)

- **EARLY SUCCESS PROGRAM TO DEMONSTRATE GPS AND NEW FREQUENCY AT TYNDALL AFB, FL**
  - **FY02**
- **IOC FY05**

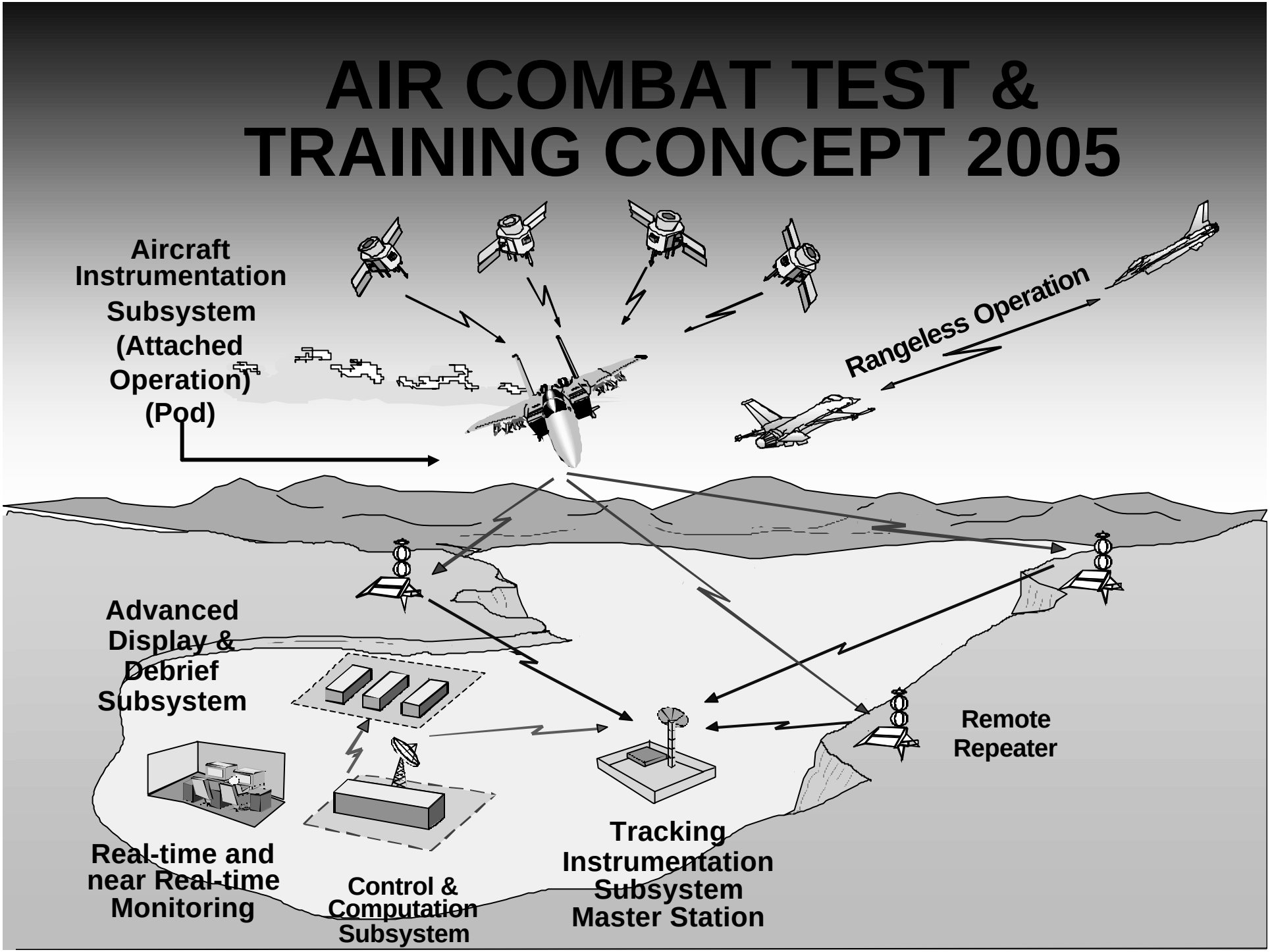
COMMON DIGITAL ARCHITECTURE (CDA)

- **OSD TARGET MANAGEMENT INITIATIVE**
- **ALL THREE SERVICES PARTICIPATING IN DEVELOPING A COMMON STANDARD FOR DIGITAL INTERFACES/BUSSES IN TARGETS**
- **TECHNOLOGY DEMONSTRATIONS ON SHIP TARGETS, BQM-74 AND MQM-107**

COMMON DIGITAL ARCHITECTURE (CDA)

- **THE GOAL FOR THIS TECHNOLOGY IS TO REDUCE WEIGHT, VOLUME, AND COST BY INCORPORATING AN INTEGRATED DIGITAL ARCHITECTURE IN TARGETS**
- **WORKSHOPS CONDUCTED WITH INDUSTRY PARTICIPATION TO DEMONSTRATE THIS CAPABILITY**
- **AIR FORCE ENCOURAGING USE ON FUTURE DEVELOPMENT PROGRAMS**

AIR COMBAT TEST & TRAINING CONCEPT 2005



AIR COMBAT TEST & TRAINING CONCEPT 2005

- RANGELESS (POD-TO-POD) OR REAL-TIME MONITORING AND CONTROL
- DATA UPLOAD, RECORDING, RETRIEVAL VIA DATA LINK OR DATA EXTRACTION DEVICE (DED), DATA/TSPI MERGING
- ON-BOARD WEAPONS SIMULATIONS TO INCLUDE NEAR-TERM AIR-LAUNCHED WEAPONS
  - (JDAM, JSOW, WCMD, JASSM, AIM-9X, ASRAAM, ETC.)

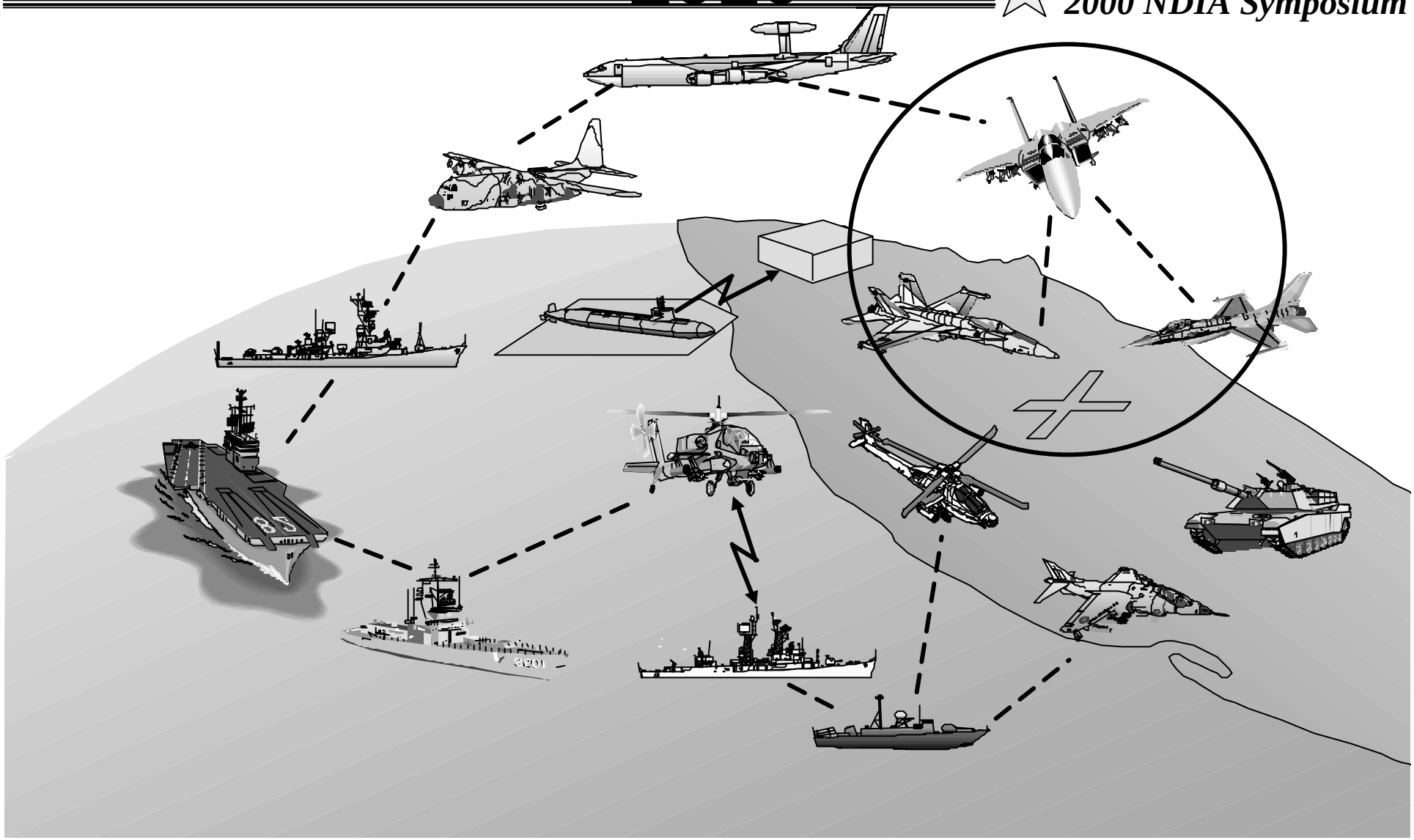
AIR COMBAT TEST & TRAINING CONCEPT 2005

(cont)

- **P(Y) CODE GPS**
- **SECURE DATA LINK USING AMODSM**
- **REAL-TIME KILL NOTIFICATION (VHF OR UHF)**
- **150 NM DATA LINK RANGE**
- **100 HIGH ACTIVITY AIRCRAFT (HAA)**
- **LOW OBSERVABLE AIRCRAFT PARTICIPATION**

AIR COMBAT TEST & TRAINING CONCEPT 2010

2000 NDIA Symposium



AIR COMBAT TEST & TRAINING CONCEPT 2010

2000 NDIA Symposium

- **DISTRIBUTED MISSION TRAINING (DMT)**
  - **VIRTUAL TRAINING INTEGRATED WITH LIVE EXERCISES**
- **400NM DATA LINK RANGE WITH**
- **APPROPRIATE RELAY**
- **1 FT TSPI TERMINAL ACCURACY**
- **COMMON TEST & TRAINING TM**

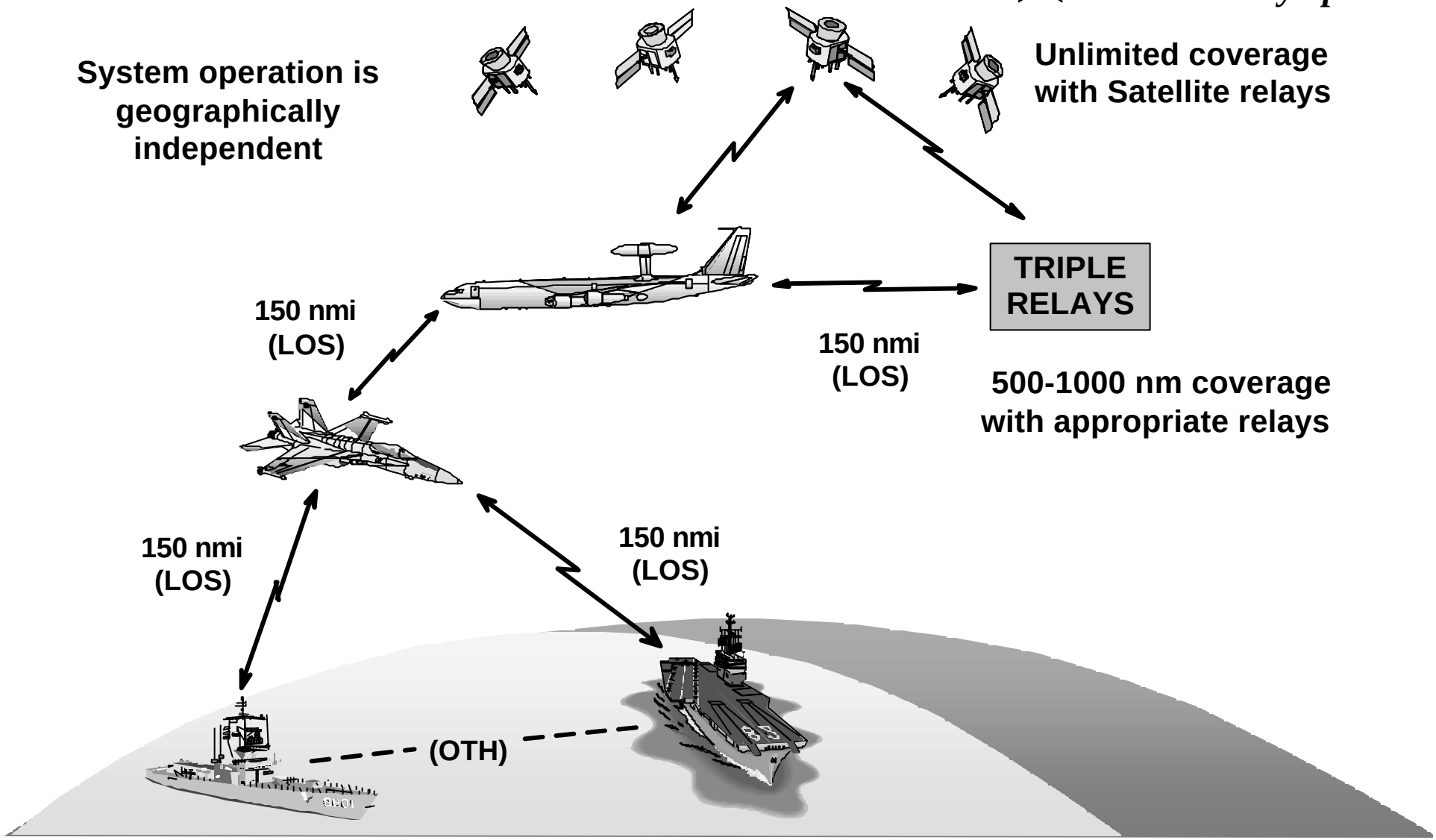
AIR COMBAT TEST & TRAINING CONCEPT 2010

2000 NDIA Symposium

- 1000 PARTICIPANTS
  - AIR/SPACE
  - GROUND FORCES
  - SURFACE SHIPS
  - SUBMARINES
- UAV/UV
- UNDERWATER TRACKING
- MULTI-SERVICE, MULTI-NATIONAL
- EXERCISES
  - PROVISIONS FOR REAL-TIME AND DEBRIEFING SECURITY

AIR COMBAT TEST & TRAINING CONCEPT 2015

2000 NDIA Symposium



AIR COMBAT TEST & TRAINING CONCEPT 2015

2000 NDIA Symposium

INTEGRATED AIR/SPACE RANGES TO SUPPORT TEST & TRAINING FOR:

- HUNTER/KILLER SATELLITES
- SATELLITE SELF-DEFENSE
- SPACEBORNE LASER
- SPACEBORNE PARTICLE BEAM
- HYPERSONIC/KINETIC KILL WEAPONS

THE NEED TO TRAIN ON AIR- TO-GROUND RANGES

2000 NDIA Symposium

- **AIR COMBAT ENVIRONMENT DEMANDS CONSTANT TRAINING**
  - **DEVELOP SITUATIONAL AWARENESS**
  - **INEXPERIENCED CREW FORCE**
  - **FLYING TIME IS AT A PREMIUM**

THE NEED TO TRAIN ON AIR- TO-GROUND RANGES

2000 NDIA Symposium

- **SIMULATOR TECHNOLOGY IS STILL IMMATURE**
  - **GROUND PROBABILITY OF KILL IS 99.99%**
  - **G-FORCES AND VISUAL CUES**

TACKLING RANGE RESIDUE

2000 NDIA Symposium

JOINT MODULAR GROUND TARGET OBJECTIVES

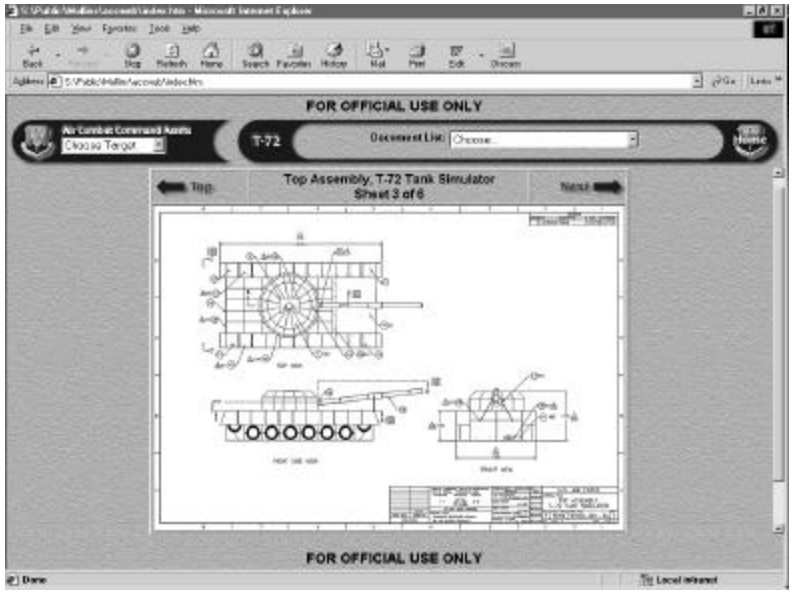
- **JOINT MODULAR GROUND TARGET (JMGT) IS AN INITIATIVE TO PROVIDE LOW COST, ENVIRONMENTALLY FRIENDLY, AND REALISTIC "LOOKING" TARGETS.**

JOINT MODULAR GROUND TARGET OBJECTIVES

- JMGT PROPOSES TO PROVIDE PRODUCTION DRAWINGS AND ASSEMBLY INSTRUCTIONS TO RANGES
  - MODULAR DESIGN--PLANS ON WEB
  - LOCAL "CRAFTSMAN" WILL BE HIRED TO MANUFACTURE AND ASSEMBLE THE DESIGNS PROVIDED
  - LOW COST: $5K - $10K EACH

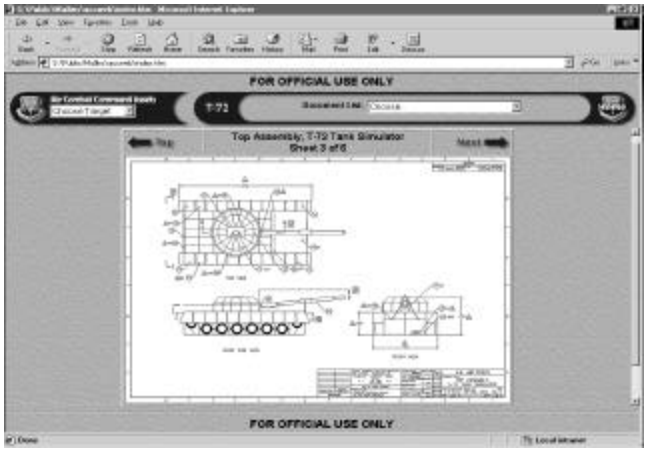
JOINT MODULAR GROUND TARGET

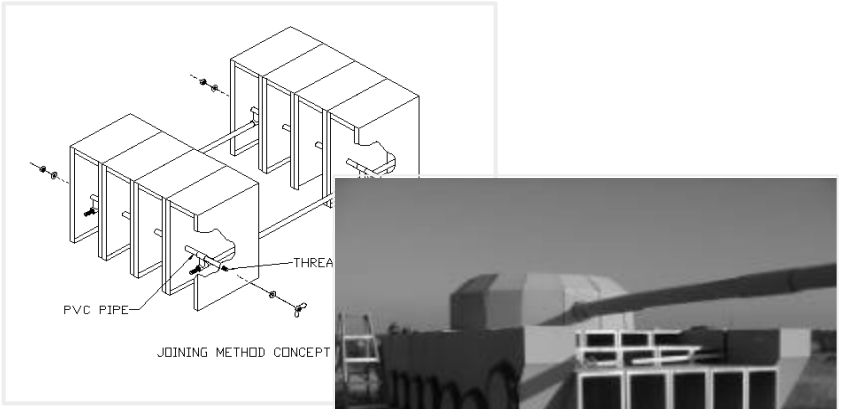
2000 NDIA Symposium



JMGT
T-72

2000 NDIA Symposium





JOINT MODULAR GROUND TARGET LIST

2000 NDIA Symposium

FIGHTER AIRCRAFT

MIG-23
MIG-21
*MIG-29
SU-17/22

FIXED SAM

SA-2
SA-3
SA-5
SA-10

WHEELED VEHICLES

BRDM
BTR-60/80
BM-21 ROCKET LAUNCHER
SA-8
SA-9

TRACKED VEHICLES

**T-72
**ZSU-23/4 BMP
**SA-6 TEL AND RADAR
SA-13
M1A1 ABRAMS TANK
BRADLEY FIGHTING VEHICLE

SSM

**SCUD
NODONG
SS-21

*ENGINEERING FUNDED, ONGOING **IN PRODUCTION

SUMMARY

- **NEW FULL SCALE TARGET BY FY10**
- **NEW SUBSCALE TARGET BY FY05**
- **MULTI-SERVICE TARGET CONTROL SYSTEM BY FY05**
- **COMMON DIGITAL ARCHITECTURE ENCOURAGED**
- **JOINT TEST AND COMBAT TRAINING SYSTEM (JTCTS) BY FY04 (AF) WITH GROWTH THRU FY10**
- **JOINT MODULAR GROUND TARGETS IN PRODUCTION/DESIGN**

Presented by
Mr. George F. Kirby

Director, Range Systems Program Office

Air Armament Center, Eglin AFB, FL

- 882-9307 ext 5022

George.Kirby@eglin.af.mil